

Chapter-13 Sound

1. A pendulum oscillates 40 times in 4 seconds. Find its time period and frequency.

Frequency of oscillations is the number of oscillations of a vibrating object per second. Therefore frequency is = 40 vibrations /4 seconds= 10 Hertz.

Time period is the time required to complete one oscillation. Or it is the inverse of time period. Therefore time period = $1/10 = 0.1$ seconds.

2. The sound from a mosquito is produced when it vibrates its wings at an average rate of 500 vibrations per second. What is the time period of the vibration?

Time Period given by the inverse of the frequency.

Time Period= $1/\text{Frequency of oscillation} = 1/500 = 0.002$ sec.

3. What is the difference between noise and music? Can music become noise sometimes?

Unwanted sound that is unpleasant to ear is called noise. A pleasant sound is called music. Music can become noise at many instances. When someone tries to enjoy very loud music, it can be noise for someone else. When loud music is played during religious celebrations or marriages, it can be annoying for many people.

4. List sources of noise pollution in your surroundings.

Some sources of noise pollution are as follows:

- i. Televisions and transistors running at high volumes*
- ii. Loudspeakers and crackers*

- iii. *Horns of buses, cars and trucks*
 - iv. *Home appliances such as mixer, desert cooler, etc.*
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5. *Explain in what way noise pollution is harmful to humans.*

Noise pollution is harmful to humans in many ways. Constant exposure to noise pollution can create many health related problems; like insomnia, hypertension and may even lead to loss of hearing.

6. *Your parents are going to buy a house. They have been offered one on the roadside and another three lanes away from the roadside. Which house would you suggest your parents should buy? Explain your answer.*

There will be more noise in the house which is along the roadside due to noise produced by transportation vehicles may cause trouble to the residents. On the other hand, the house which is three lanes away from the roadside would be quieter. Therefore, it is better to take the house that is three lanes away from the roadside.

7. *Lightning and thunder take place in the sky at the same time and at the same distance from us. Lightning is seen earlier and thunder is heard later. Can you explain?*

The speed of sound is less than the speed of light. Due to this, light reaches to us faster than sound. Hence, during lightning we see the streak of light earlier than hearing the sound of thunder.
